The implementation of the energy transformation to prevent sustainable environmental damage through further CO₂ emissions is an important political goal.

At present time, decarbonisation is being promoted in the electricity sector through subsidies for investments in wind turbines and solar photovoltaics. From a perspective, this is also aimed at the heating and transport sector. In order to make the system transformation as efficient as possible, it is necessary to interlink the sectors because the different characteristics in generation and consumption contain synergy potentials that need to be exploited.

The aim of this work is to extend an existing model so that heat consumption is also taken into account. This is to be covered by various technology options to be modelled. In addition to cogeneration, heat pumps and heat storage should also be taken into account here. For this purpose, a suitable parameterization is to be found for these technologies. The work therefore includes:

- Implementation of heat demand curves and generators in the model
- Completion of the operational management in the model for heat demand coverage
- Parameterization of extended generators and storage in the heating sector
- Investigation of future development paths with heat consideration

The model extension needs to be implemented in C++, therefore a firm command of this language is mandatory!

Good Luck!